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## NOTES

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## ON THE RUDDY COLOR OF THE RUDDY TURNSTONE

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Bent (1929:298) remarked of the Black Turnstone (*Arenaria melanocephala*) that "As it stands motionless it is almost invisible in its coat of dark brown and might easily be mistaken for a knob of rock or bunch of seaweed." Furthermore, dark, shadowed crevices abound on the rocky Pacific coasts where this species winters. On the other hand, no one seems to have suggested any concealing (or other) function for the ruddy coloration of the Ruddy Turnstone (*A. interpres*), the Black Turnstone's only congener.

The intensity and persistence into winter of the dorsal coloration of the Ruddy Turnstone appears to be unique among North American shorebirds, being approached only by a lighter reddish cast peppered with black assumed by some other sandpipers primarily during the breeding season. Like these other shorebirds, the Ruddy Turnstone is also brighter in the breeding season, but despite field guides depicting it as having no ruddy in winter, my experience is that wintering individuals in Florida retain a (usually darker) reddish hue. The coloration results mainly from rufous edges or tips of central feathers of the lower mantle (Nettleship 2000; *vide* in specimen examined, collection at Archbold Biological Station). Ruddy Turnstones may molt into winter (definitive basic) plumage as late as March or April, and then molt into breeding (definitive alternate) plumage from late February to June (Nettleship 2000). Individuals might therefore spend little time in the non-ruddy winter plumage of field guides.

The Ruddy Turnstone is a common winter resident on both coasts of Florida, including the vicinity of Jupiter Inlet, Palm Beach County, Florida, where groups of up to two dozen individuals feed along the ocean beach where my wife and I walk each morning. The birds forage for small invertebrates in windrows (and "surfrows") of wrack composed mainly of gulfweed (*Sargassum*) in the family Fucaceae of the phylum of brown seaweeds. Two similar species of pelagic *Sargassum* commonly wash ashore here (Gosner 1979), possibly augmented by North American and West Indian benthic species that have broken loose from their attachments. Photographs and paintings of *Sargassum* in books illustrate live gulfweed, which is yellowish to greenish brown—and is indeed often the coloration of newly arrived jetsam. Dead gulfweed, however, turns a deep reddish color that is remarkably similar to the dorsal coloration of the Ruddy Turnstones associated with it.

Not only do the turnstones forage in the dried, ruddy *Sargassum*, but perhaps more importantly they rest among bunches of it. A resting turnstone crouches down on the sand, preferring to be in a small depression if one is available. The birds are so cryptic that we have almost stepped on individuals that were in large groups completely undetected by us until they scurried away a short distance at the last moment.

The Ruddy Turnstone has a widespread wintering range. The species occurs on the Atlantic shores of Europe, North America and South America, as well as on Pacific shores of the Americas and Pacific islands. It seems likely that the bird forages in and rests among wrack throughout its wintering range, although not necessarily always in *Sargassum*. Nevertheless, other kinds of seaweeds, particularly brown algae, may also dry to a deep reddish hue so that the turnstone's coloration might provide concealment in most or all parts of its wintering range.

Whether or not the intensified ruddy color in spring provides concealment on the breeding grounds in the Arctic tundra—or conversely serves there to make the bird conspicuous in courtship or territorial interactions—is an interesting further question. The upperparts of the downy chicks “vary from light buff-gray to cinnamon-buff . . .” (Nettleship 2000:24), somewhat similar to dorsal coloration of the incubating bird, and thus suggesting the possibility of matching nearby vegetation. I cannot find specific color descriptions of plants around turnstone nests even though the kinds of plants are known, but the color photograph of an incubating bird shows plant materials of similar hue (Nettleship 2000). The photo also suggests that the black-and-white anterior patterns constitute disruptive coloration, visually breaking up the shape of the bird. With regard to the conspicuousness hypothesis, the species does ruffle the back feathers in aggressive display, but the white throat and black breast are apparently the major visual components of the display (Whitfield 1986). Finally, it is possible that a color pattern can be concealing at a distance (by color matching or disruptive pattern) but also conspicuous up close so that the two hypotheses are not mutually exclusive.

In conclusion, the ruddy dorsal coloration of the Ruddy Turnstone provides remarkably effective crypticity in matching the dried *Sargassum* in which the birds feed and rest in winter. The function of the brighter ruddy coloration on the breeding grounds may also be concealing, especially in conjunction with the disruptive coloration anterior to the ruddy back.

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